



STATEMENT OF BASIS
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 BAQ Engineering Services Division

Company Name:	Coveris Flexibles US LLC	Permit Writer:	Randy Price
Permit Number:	2060-0075-CN	Date:	DRAFT

DATE APPLICATION RECEIVED: 1-25-16 (CP)

FACILITY DESCRIPTION

This facility is a manufacturer of printed multi-wall bags for consumer products such as animal feed, charcoal, coffee, sugar, and cookies. NAICS=322224, 326111

PROJECT DESCRIPTION

This is an expedited synthetic minor construction permit to add new Flexographic Press #150 (P150). The press will consist of ten printing decks, one direct-fired between-color dryer, one direct-fired tunnel dryer, and one corona treater. The emissions will be controlled by the existing regenerative oxidizer (RT01).

This synthetic minor permit includes the new press in the facility-wide limits of less than 250 tpy for VOCs and 10/25 tpy for HAPs.

Existing equipment will be removed in order to install the new press with its auxiliary equipment. Equipment to be removed is: Press 160 (P160), 4.13 million BTU/hr natural gas fired VPI Hot Oil Heater (HOT-1), and Gravure Pre-Make Area (GPM01). The net emissions change resulting from the removal of Press 160 and addition of Press 150 will be a facility-wide reduction of VOCs.

SOURCE TEST REQUIREMENTS

Source testing is required for the new press. The test should verify 100% capture/95% destruction for the press/RTO.

SPECIAL CONDITIONS, MONITORING, LIMITS

None

EMISSIONS

UNCONTROLLED POTENTIAL EMISSIONS (PROJECT ONLY)				
ID	Pollutant	lb/hr	TPY	Method for Estimating Emissions
CN	PM	0.0042	0.019	AP-42
CN	PM ₁₀	0.0042	0.019	AP-42
CN	PM _{2.5}	0.0042	0.019	AP-42
CN	SO ₂	0.0003	0.001	AP-42
CN	NO _x	0.0558	0.244	AP-42
CN	CO	0.0469	0.205	AP-42
CN	VOC	645.8876	2828.988	Mass Balance
CN	Formaldehyde	4.18E-05	1.83E-04	AP-42
CN	Benzene	1.17E-009	5.13E-09	AP-42
CN	Naphthalene	3.40E-07	1.49E-06	AP-42
CN	Toluene	1.90E-06	8.31E-06	AP-42
CN	Hexane	1.00E-03	4.40E-03	AP-42
CN	Total HAPs	1.05E-03	4.59E-03	40 CFR 98
CN	CO ₂	66.5594	291.530	40 CFR 98
CN	CH ₄	0.0013	0.005	40 CFR 98
CN	N ₂ O	1.25e-04	5.49e-04	40 CFR 98
CN	CO _{2e}	66.6281	291.831	40 CFR 98



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VOC EMISSIONS

Square Foot Maximum

$P150 \text{ Max Sq. Ft} = (\text{Press Rate}) \cdot (\text{Printing Width}) = (1,640\text{-ft/min}) \cdot (4.17\text{-ft})$
 $= 6,833.33 \text{-sq. ft/min} = 410,000 \text{-sq. ft/hr}$

P150 Ink Coating Usage Maximum

$P150 \text{ Max Ink Usage} = (P150 \text{ Ink Usage}) \cdot (P150 \text{ Max Sq. Ft}) = (0.00131\text{-lb/sq.ft}) \cdot (410,000\text{-sq. ft/hr})$
 538.1-lb/hr

Ink VOC EmissionRate Maximum

$P150 \text{ Ink VOC Emissions} = (P150 \text{ Ma x Ink Usage}) \cdot (\text{Max Ink VOC Content})$
 $= (538.1\text{-lb/hr}) \cdot (0.75)$
 403.6-lb/hr

P150 Two-Way Usage Maximum

$P150 \text{ Max Two -Way Usage} = (P150 \text{ Max Ink Usage}) \cdot [\text{Two -Way to Ink Usage Ratio}] = (538.1\text{-lb/hr}) \cdot (0.40)$
 215.3-lb/hr

Two-Way VOC Emission Rate Maximum

$P150 \text{ Two-Way VOC Emissions} = (P150 \text{ Max Two-Way Usage}) \cdot (\text{Max Two-Way VOC Content}) = (215.3\text{-lb/hr}) \cdot (1.00)$
 215.3-lb/hr

P150 Extender Usage Maximum

$P150 \text{ Max Extender Usage} = (P150 \text{ Max Ink Usage}) \cdot (\text{Extender to Ink Usage Ratio})$
 $= (538.1\text{-lb/hr}) \cdot (0.067)$
 36.1-lb/hr

Extender VOC Emission Rate Maximum

$P150 \text{ Extender VOC Emissions} = (P150 \text{ Max Extender Usage}) \cdot (\text{Max Extender VOC Content}) = (36.1\text{-lb/hr}) \cdot (0.75)$
 $= 27.0 \text{-lb/hr}$

Total VOC Emission Rate Maximum -Uncontrolled

$\text{Total Uncontrolled VOC Emissions} = (P150 \text{ Ink VOC Emissions}) + (P150 \text{ Two-Way VOC Emissions}) + (P150 \text{ Extender VOC Emissions})$
 $= (403.6\text{-lb/hr}) + (215.3\text{-lb/hr}) + (27.0\text{-lb/hr})$
 $= 645.9 \text{-lb/hr}$
 $= 2,829.0 \text{-tons/yr}$

Total VOC Emission Rate Maximum -Controlled

$\text{Total Controlled VOC Emissions} = ((\text{Total Uncontrolled VOC Emissions}) \cdot (1 - \text{Collection Efficiency})) + ((\text{Total Uncontrolled VOC Emissions}) \cdot (\text{Collection Efficiency}) \cdot (1 - \text{RTO VOC Destruction Efficiency})) = ((645.9\text{-lb/hr}) \cdot (1 - 1.00)) + ((645.9\text{-lb/hr}) \cdot (1.00) \cdot (1 - 0.95))$
 $= 32.3 \text{-lb/hr}$
 $= 141.4 \text{-tons/yr}$



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CONTROLLED POTENTIAL EMISSIONS (PROJECT ONLY)

ID	Pollutant	lb/hr	TPY	Method for Estimating Emissions
CN	VOC	32.2973	141.462	Mass Balance/Calculation

Total VOC Emission Rate Maximum -Controlled (100% Capture, 95% Destruction)

Total Controlled VOC Emissions= ((Total Uncontrolled VOC Emissions)* (1-Collection Efficiency)) + ((Total Uncontrolled VOC Emissions) • (Collection Efficiency) • (1 –RTO VOC Destruction Efficiency)) = ((645.9-lb/hr) • (1 -1.00)) + ((645.9-lb/hr) • (1.00) • (1 -0.95))

=32.3 -lb/hr

=141.4 -tons/yr

FACILITY WIDE EMISSIONS

Pollutant	Uncontrolled Emissions	Controlled Emissions*
	TPY	TPY
PM	3.578	N/A
PM ₁₀	3.578	N/A
PM _{2.5}	3.578	N/A
SO ₂	0.062	N/A
NO _x	10.020	N/A
CO	8.659	N/A
VOC	7466.58	<250 (1) (4)
Ethanolamie	663.279	<10 (2)
Vinyl Acetate	17.541	<10 (2)
Formaldehyde	8.28E-03	<10 (2)
Benzene	2.17E-07	<10 (2)
Naphthalene	6.29E-05	<10 (2)
Toluene	3.51E-04	<10 (2)
Hexane	1.86E-01	<10 (2)
MDI	4.22E-03	<10 (2)
Acrolein	5.49E-05	<10 (2)
Acetaldehyde	6.59E-04	<10 (2)
Propionaldehyde	3.84E-04	<10 (2)
Acrylic Acid	1.10E-04	<10 (2)
Maleic Anhydride	5.56E-04	<10 (2)
Total HAPs	17.770	<25 (3)
CO ₂	12,266.02	N/A
CH ₄	0.232	N/A
N ₂ O	0.024	N/A
CO ₂ e	12,278.06	N/A

*Controlled emissions include federally enforceable limits & control devices.

- 1) PSD Synthetic Minor Threshold Limit
- 2) MACT Avoidance Threshold Limit
- 3) MACT Avoidance Threshold Limit
- 4) Recordkeeping for December 2015 indicates compliance with all permit limits.



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OPERATING PERMIT STATUS

The facility is operating under a TV operating permit that was issued 11-6-14.

REGULATORY APPLICABILITY REVIEW

Regulation	Comments/Periodic Monitoring Requirements
Section II.E - Synthetic Minor	Applicable: This is a synthetic minor construction permit with PSD/MACT limits of less than 250 tpy VOC and less than 10/25 tpy HAPs for Press 150. Note, MACT limits are included even though no HAPs are currently to be used (future use). The existing thermal oxidizer will be used to meet the limits.
Section II(G): Conditional Major	Not Applicable: No applicable source.
Standard No. 1	Not Applicable: This facility has no permitted fuel burning sources. All sources, dryers, ovens, etc. are direct fired.
Standard No. 3 (state only)	Applicable: The existing Regenerative Thermal Oxidizer is subject to this standard with limits of 20% (Opacity) and 0.5 lb/million BTU (PM). The regenerative thermal oxidizer is utilized for the control of VOC emissions during the application of solvent based coatings along with solvent cleanup support activities. The test requirement for PM is waived since the facility's emissions are mainly VOCs which are not visible.
Standard No. 3.1	Not Applicable: This project does not contain any medical waste incineration sources.
Standard No. 4	Applicable: This project is subject to this regulation with an opacity limit of 20%. The press has no PM emissions other than those from combustion.
Standard No. 5	Not Applicable: The process was not in existence in 1979 or 1980.
Standard No. 5.2	Not Applicable: All combustion sources fall under one of the seventeen exemptions from this standard (less than 10 million BTU/hr).
Standard No. 7	Applicable: The facility has taken a facility-wide synthetic minor limit of less than 250 TPY (facility-wide) for VOCs in order to remain a minor source for PSD.
61-62.6	Not Applicable: This project does not have any fugitive PM (dust) emissions.
40 CFR 60 and 61-62.60	Not Applicable: The facility is not subject to Subpart QQ (Publication Rotogravure Printing). The facility does not perform any printing of publications as defined by this regulation.
40 CFR 61 and 61-62.61	Not Applicable: This project does not contain any processes/operations that emit the pollutants subject to this standard (asbestos, benzene, beryllium, coke oven emissions, arsenic, mercury, radio nuclide, radon, or vinyl chloride).
40 CFR 63 and 61-62.63	Not Applicable: This facility is not subject to 40 CFR 63 Subpart KK because the facility has taken federally enforceable limits to remain a minor source for HAPS (2060-0075CJ). The facility is not subject to the area source portion of 40CFR63 Subpart KK. The facility has taken federally enforceable limits of 10/25 for HAP emissions which satisfies (a)7 of the subpart and by doing so it is not subject to the area source portion of the subpart (2060-0075CM).
61-62.68	Not Applicable: This facility does not store or use chemicals subject to 112(r) above the threshold quantities.
61-62.70	Applicable: The facility is a major source that is subject to this standard. The facility is major for VOCs.
40 CFR 64	Applicable: This facility is subject to this regulation for Unit ID 19 (P160), (P120), and Unit ID 21 (PM01). Press P150 of this construction permit will also be subject to this regulation. The regenerative thermal oxidizer is utilized for the control of VOC emissions during the application of solvent based coatings along with solvent cleanup support activities to meet permit limitations for PSD. This is considered a Large Unit since VOC emissions can exceed 100 tpy.

MODELING REVIEW



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Regulation	Comments/Periodic Monitoring Requirements
Standard No. 2	Applicable: Modeling has been exempted by the Modeling Section; see modeling summary dated 2-1-16.
Standard No. 7.c	Applicable: Modeling has been exempted by the Modeling Section; see modeling summary dated 2-1-16.
Standard No. 8 (state only)	Not Applicable: The facility has demonstrated compliance through modeling for all TAPs; see modeling summary dated 2-1-16.

SC Regulation 61-62.5, Standard No. 4						
ID	Opacity (%)	PM Allowable (lb/hr)	Process Weight Rate (tons/hr)	Uncontrolled PM Emissions (lb/hr)	Controlled PM Emissions (lb/hr)	Monitoring
CN	20%	N/A	N/A	N/A	N/A	None required for combustion emissions as long as natural gas is the only fuel.

PERIODIC MONITORING					
ID	Pollutant/Parameter	Limit	Required Monitoring Frequency	Reporting Frequency	Monitoring Basis/Justification
CN	VOC	<u>Permit Cond. C.8:</u> ≥95% (destruction) 100% (capture-for (P150) / RTO-01	Every 4 years	Semiannual	Testing and Recordkeeping
CN	PM, Opacity	<u>Permit Cond. C.7:</u> PM less than 0.5 lb/million BTU, Opacity less than 20% for RTO-01	Routine control device inspection and maintenance (as defined by operational history)	Onsite records	No monitoring required as long natural gas is used as fuel and due to the physical properties of VOCs
Facility-Wide	VOC/HAP	<u>Permit Cond. C.6:</u> Less than 250 tpy (VOC) / Less than 10 tpy (each HAP) and less than 25 tpy (combined HAPS)	Monthly	Semiannual	Recordkeeping
CN	VOC	<u>Permit Cond. C.8:</u> 95% (destruction), 100% (capture-Press 150)	Test every 4 years/ Continuous monitoring per CAM plan	Semiannual	Test/CAM



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PUBLIC NOTICE

This construction permit will undergo a 30-day public notice period to establish synthetic minor limits in accordance with SC Regulation 61-62.1, Section II.N. This permit was placed on the DHEC Public Notice website on March 9, 2016. The comment period was open from March 9, 2016 to April 7, 2016.

ADDITIONAL PUBLIC PARTICIPATION: N/A

SUMMARY AND CONCLUSIONS

It has been determined that this source, if operated in accordance with the submitted application, will meet all applicable requirements and emission standards.